

**What is Claimed is:**

1. A method for monitoring a network comprising:
- receiving at least one data packet;
- reading an entry of a memory device, the entry of the memory device containing a
- 5 first statistical value and a second statistical value;
- determining a third statistical value based on at least one of a content of the at least
- one data packet, the first statistical value, and the second statistical value; and
- storing the determined third statistical value in the entry of the memory device.
- 10 2. The method of claim 1,
- wherein the at least one data packet contains a set of data bits,
- wherein the first statistical value includes a count of the received at least one data
- packet, and
- wherein the second statistical value includes a count of a subset of data bits of the
- 15 received at least one data packet.
3. The method of claim 1, wherein storing the determined third statistical value in the
- entry of the memory device overwrites one of the first statistical value and the second
- statistical value.
- 20 4. The method of claim 1, wherein the at least one data packet comprises at least one of
- SONET, ATM, Ethernet, HDLC, PPP, IP, TCP, and UDP data packet.
5. The method of claim 1, wherein the third statistical value comprises updates to at least
- 25 one of the first statistical value and the second statistical value.

6. The method of claim 5, wherein the third statistical value updates at least one of the first statistical value and the second statistical value by at least one of incrementing and decrementing the first statistical value and the second statistical value, respectively, by a value.

7. The method of claim 5, wherein the third statistical value updates at least one of the first statistical value and the second statistical value by adding a value to the first statistical value and the second statistical value, respectively.

8. The method of claim 7, wherein the value comprises a negative value.

9. The method of claim 1, wherein the entry of the memory device is associated with the received data packet.

10. The method of claim 2, wherein the subset of data bits of the received data packet comprises 8 data bits of the received data packet.

11. The method of claim 5, wherein the third statistical value updates at least one the first statistical value and the second statistical value by correcting an error in the at least one of the first statistical value and the second statistical value.

12. An apparatus for monitoring a network comprising:  
a receiver configured to receive at least one data packet;

an entry of a memory device configured to store a first statistical value and a second statistical value;

a processor coupled to the receiver and the memory device, the processor being configured to determine a third statistical value based on at least one of a content of the at least one data packet, the first statistical value, and the second statistical value, and to store the third statistical value in the entry of the memory device.

13. The apparatus of claim 12,

wherein the at least one data packet contains a set of data bits,

wherein the first statistical value includes a count of the received at least one data packet, and

wherein the second statistical value includes a count of a subset of data bits of the received at least one data packet.

14. The apparatus of claim 12, wherein storing the third statistical value in the entry of the memory device overwrites one of the first statistical value and the second statistical value.

15. The apparatus of claim 12, wherein the at least one data packet comprises at least one of SONET, ATM, Ethernet, HDLC, PPP, IP, TCP, and UDP data packet.

16. The apparatus of claim 12, wherein the third statistical value comprises updates to at least one of the first statistical value and the second statistical value.

17. The apparatus of claim 16, wherein the third statistical value updates at least one of the first statistical value and the second statistical value by at least one of incrementing and

decrementing the first statistical value and the second statistical value, respectively, by a value.

18. The apparatus of claim 16, wherein the third statistical value updates at least one of the first statistical value and the second statistical value by adding a value to the first statistical value and the second statistical value, respectively.

19. The apparatus of claim 18, wherein the value comprises a negative value.

20. The apparatus of claim 12, wherein the entry of the memory device is associated with the data packet.

21. The apparatus of claim 13, wherein the subset of data bits of the received data packet comprises 8 data bits of the received data packet.

22. The apparatus of claim 16, wherein the third statistical value updates at least one the first statistical value and the second statistical value by correcting an error in the at least one of the first statistical value and the second statistical value.

23. A computer-readable medium encoded with a program for a computer, the program comprising:

receiving at least one data packet;

reading an entry of a memory device, the entry of the memory device containing a first statistical value and a second statistical value;

determining a third statistical value based on at least one of a content of the at least one data packet, the first statistical value, and the second statistical value; and  
storing the determined third statistical value in the entry of the memory device.

- 5     24.     The computer-readable medium of claim 23,  
         wherein the at least one data packet contains a set of data bits,  
         wherein the first statistical value includes a count of the received at least one data  
         packet, and  
         wherein the second statistical value includes a count of a subset of data bits of the  
10    received at least one data packet.

25.     The computer-readable medium of claim 23, wherein storing the determined third  
statistical value in the entry of the memory device overwrites one of the first statistical value  
and the second statistical value.

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26.     The computer-readable medium of claim 23, wherein the at least one data packet  
comprises at least one of SONET, ATM, Ethernet, HDLC, PPP, IP, TCP, and UDP data  
packet.

- 20    27.     The computer-readable medium of claim 23, wherein the third statistical value  
comprises updates to at least one of the first statistical value and the second statistical value.

28.     The computer-readable medium of claim 27, wherein the third statistical value  
updates at least one of the first statistical value and the second statistical value by at least one

of incrementing and decrementing the first statistical value and the second statistical value, respectively, by a value.

29. The computer-readable medium of claim 27, wherein the third statistical value

5 updates at least one of the first statistical value and the second statistical value by adding a value to the first statistical value and the second statistical value, respectively.

30. The computer-readable medium of claim 29, wherein the value comprises a negative value.

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31. The computer-readable medium of claim 23, wherein the entry of the memory device is associated with the received data packet.

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32. The computer-readable medium of claim 24, wherein the subset of data bits of the received data packet comprises 8 data bits of the received data packet.

33. The computer-readable medium of claim 27, wherein the third statistical value updates at least one the first statistical value and the second statistical value by correcting an error in the at least one of the first statistical value and the second statistical value.